Space Weather Forecast

Issued on Saturday, 11 June 2022 at 13:02 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight chance of moderate-class X-ray flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was low in the last 24 hours, with only a couple of Common class flares that seemed to have originated from one of the two regions located near the northeastern limb. These occurred right at the beginning of the period, after what the activity became subdued. There are currently up to four sunspots on the visible disc, two of which are moderately complex and developing bipolar regions.

A 'disappearing filament' (arc of plasma leaving the sun) was seen leaving the northwest of the sun around 10/1630UTC on ground-based near infrared imagery. A very faint ejecta was observed leaving the sun on satellite imagery, it may well be Earth-directed but its velocity is estimated to be low. No other Coronal Mass Ejectas (CME) were observed.

Solar Wind / Geomagnetic Activity: The solar wind was mostly characteristic of a slow regime. The solar wind speed was consequently near background levels, though its number of particles constantly increased, perhaps indicating the arrival of a high speed stream. The associated magnetic field was weak, with only small variations in its important north-south component. The overall effect of the above solar wind measures on geomagnetic activity was mostly Quiet with one provisional Unsettled interval between 11/0600-0900 UTC.

Energetic Particles / Solar Radiation: No solar radiation storms were detected.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be mainly low, with only a slight chance of moderate-class flares. However a bright flux region can be observed on satellite imagery, suggesting further sunspots are likely to rotate onto the earth-facing disc in the coming days, leading to an increasing risk of flares.

Solar Wind / Geomagnetic Activity: A filament lift-off was seen leaving the sun at around 10/1630UTC. The results of its analysis are not fully known yet but it may be Earth-directed and could arrive at Earth on Day 4. No other Earth-directed CMEs were observed. Recent measurements from a satellite two days 'upwind' of Earth also suggest a fast wind as potentially arriving at Earth on Day 2, although activity should be muted. Overall geomagnetic activity is expected to be mainly Quiet on Day 1 but Quiet to Unsettled on Days 2 to 4, with a slight chance of Active intervals on Day 4.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	25	30	35	40
Very Active	R3 to R5 X	No	2	3	5	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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